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World Health Day — April 7, 1997

"Emerging Infectious Diseases: Reduce the Risk" is the theme in the United States for World Health Day, April 7, 1997. The day will focus on challenges associated with emerging, reemerging, and drug-resistant infections. Infectious diseases remain the world's leading cause of death, accounting for approximately half of the 50 million deaths annually (*1*). In the United States, of the 10 leading causes of death, infectious diseases account for two (human immunodeficiency virus and pneumonia and influenza) (*2*).

The increasing interaction between humans and changing environments worldwide through access to rapid travel have increased the global risk for emerging diseases. In June 1996, the President directed federal agencies to work together and with other countries to develop a global surveillance and response system that can quickly and effectively address outbreaks (*3*).

The role of education is critical in preventing the spread of infectious diseases. Improved understanding of risks presented by emerging infectious diseases, why these infections occur, and how to control and prevent infections will enable individuals, community organizations, health professionals, and others to reduce the risks associated with these diseases.

The American Association for World Health coordinates World Health Day activities in the United States in collaboration with the association's World Health Day Advisory Committee. Information about special events and resource materials about World Health Day 1997 are available from the American Association for World Health, telephone (202) 466-5883. Additional information about emerging and other infectious diseases is available from CDC by accessing the World-Wide Web at http://www.cdc.gov/ncidod/ncid.htm.

References

1. World Health Organization. Progress towards health for all: third monitoring report. World Health Stat Q 1995;48:190.
2. Rosenberg HM, Ventura SJ, Maurer JD, et al. Births and deaths: United States, 1995. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, National Center for Health Statistics 1996:31. (Monthly vital statistics report; vol 4, no. 3, suppl 2).
3. Gore A. Emerging infections threaten national and global security. ASM News 1996; 62:448–9.

Foodborne Diseases Active Surveillance Network, 1996

As an important strategy for addressing emerging infections in the United States, in 1994 CDC began implementing Emerging Infections Programs (EIPs) in state health departments, in collaboration with local health departments, academic institutions, and organizations of health professionals (*1*). EIPs are sites that conduct special population-based surveillance projects, emphasize collaborative epidemiologic and laboratory projects, and pilot and evaluate prevention efforts. The primary foodborne diseases component of the EIP is the Foodborne Diseases Active Surveillance Network (FoodNet)—a collaborative effort among CDC, the U.S. Department of Agriculture (USDA), the Food and Drug Administration, and the EIP sites. The objectives of FoodNet are to 1) determine more precisely the burden of foodborne diseases in the United States, 2) determine the proportion of specific foodborne diseases associated with certain contaminated foods or with other exposures, and 3) provide the framework to respond rapidly and collaboratively to emerging foodborne diseases. This report summarizes preliminary results from FoodNet for 1996, which document regional and seasonal differences in the incidences of certain bacterial foodborne diseases, and presents findings of the 1995 baseline survey of clinical laboratories, which suggests that, for some pathogens, factors other than differing laboratory practices accounted for regional variations in incidences.

Active Surveillance

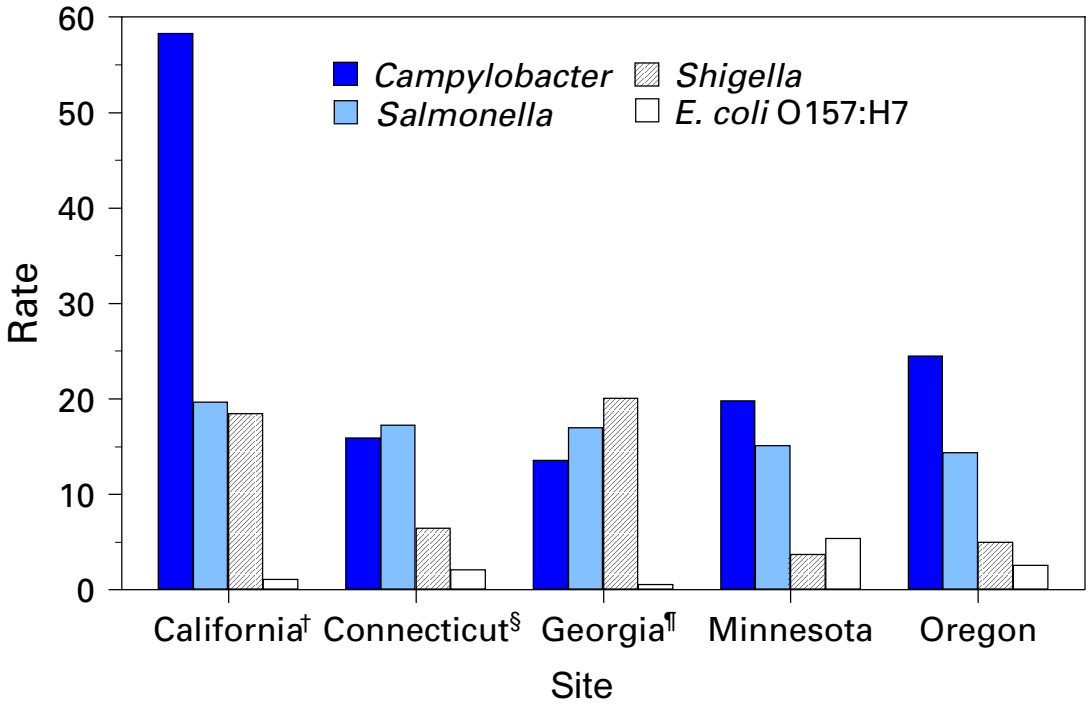
On January 1, 1996, FoodNet began collecting population-based active surveillance data on culture-confirmed cases of seven potentially foodborne diseases (*Campylobacter*, *Escherichia coli* O157:H7, *Listeria*, *Salmonella*, *Shigella*, *Vibrio*, and *Yersinia* infections) among the 13.2 million residents in five EIP sites*. After identifying the clinical laboratories that routinely tested for infectious agents the stool specimens of residents of the sites (including several out-of-state laboratories), these laboratories were routinely (i.e., weekly or monthly) contacted by investigators to identify cases. After removal of subsequent isolations from chronic carriers, annual incidence rates were calculated using the number of reported cases as the numerator and census estimates for the individual catchment areas as the denominator.

In 1996, a total of 7223 culture-confirmed cases of the seven foodborne diseases were identified from stool specimens or specimens from normally sterile sites. Incidence rates were highest for campylobacteriosis (25 per 100,000 population), followed by salmonellosis (16), shigellosis (9), *E. coli* O157:H7 infection (3), *Yersinia* infection (1), listeriosis (0.5), and vibriosis (0.2). For all the diseases except salmonellosis, rates varied substantially among the EIP sites (Figure 1). Rates for campylobacteriosis ranged from 14 (Georgia) to 58 (California); for shigellosis, from 4 (Minnesota) to 20 (Georgia); for *E. coli* O157:H7 infection, from 0.6 (Georgia) to 5 (Minnesota); for *Yersinia* infection, from 0.5 (California) to 3 (Georgia); and for vibriosis, from 0.1 (Connecticut, Minnesota, and Oregon) to 0.3 (California). Rates also varied by age: for example, among children aged <1 year, the rate for salmonellosis ranged from 73 (Connecticut) to 270 (Georgia) and, for campylobacteriosis, ranged from 25 (Georgia) to 193 (California).

*Minnesota, Oregon, and selected counties in California (Alameda and San Francisco), Connecticut (Hartford and New Haven), and Georgia (Clayton, Cobb, DeKalb, Douglas, Fulton, Gwinnett, Newton, and Rockdale).

Foodborne Diseases Active Surveillance Network — Continued

FIGURE 1. Incidence rate* of laboratory-confirmed cases of *Campylobacter, Salmonella, Shigella,* and *Escherichia coli* O157:H7 infections, by selected sites — Foodborne Diseases Active Surveillance Network, Emerging Infections Programs, 1996



*Per 100,000 population.
†Alameda and San Francisco counties.
§Hartford and New Haven counties.
¶Clayton, Cobb, DeKalb, Douglas, Fulton, Gwinnett, Newton, and Rockdale counties.

Isolation patterns varied by season for several pathogens: 50% of *E. coli* O157:H7, 35% of *Campylobacter,* and 33% of *Salmonella* were isolated during summer months (June–August). The percentage of pathogens isolated from normally sterile sites (e.g., blood and cerebrospinal fluid) was 89% for *Listeria*, 10% for *Vibrio*, 9% for *Salmonella*, 3% for *Yersinia*, and 1% each for *Shigella* and *Campylobacter*. Of the 7223 case-patients, 1174 (16%) were hospitalized; hospitalization rates were highest for persons with listeriosis (94%), followed by those with *Yersinia* infection (32%), *E. coli* O157:H7 infection (28%), salmonellosis (22%), vibriosis (20%), shigellosis (14%), and campylobacteriosis (10%). Of the 34 deaths, 16 (47%) were associated with salmonellosis; nine (26%), with listeriosis; four (12%), with campylobacteriosis; two (6%), with *E. coli* O157:H7 infection; two (6%), with shigellosis; and one (3%), with vibriosis.

Laboratory Survey

To assess variations in laboratory culturing practices, in late 1995 FoodNet investigators mailed a questionnaire to the microbiology supervisor at each of the 234 clinical laboratories that tested stool specimens for infectious agents in the EIP sites. The 230 responding laboratories performed approximately 22,000 bacterial stool cultures in August 1995.

Foodborne Diseases Active Surveillance Network — Continued

Responding laboratories reported that all stool specimens submitted for bacterial culture were tested for *Salmonella* and *Shigella*, and approximately 99% of specimens were tested for *Campylobacter*. Culturing practices for *Vibrio*, *Yersinia*, and *E. coli* O157:H7 varied substantially among laboratories surveyed. Overall, 20% (range: 9%–43%) of stool specimens were tested routinely for *Vibrio*; 34% (range: 13%–52%), for *Yersinia*; and 47% (range: 6%–82%), for *E. coli* O157:H7. Overall, 80% (range: 58%–99%) of all bloody stool specimens submitted to these laboratories were tested for *E. coli* O157:H7.

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Editorial Note: The preliminary findings from FoodNet for 1996 document regional and seasonal differences in the incidences of certain bacterial foodborne diseases, particularly *Campylobacter* infection. Potential explanations for these differences include regional and seasonal variations in food-handling practices and the level of contamination of specific food items. Ongoing studies are directed toward determining whether the variations in laboratory culturing practices for *E. coli* O157:H7, *Yersinia*, and *Vibrio* are associated with the regional differences in incidences of the respective diseases. However, differences in laboratory practices did not account for variations in the incidences of *Campylobacter* and *Shigella* infections. FoodNet has enabled more precise calculation of incidences of seven bacterial foodborne pathogens and monitors the effectiveness of recent food-safety interventions (e.g., the USDA mandated changes in the meat and poultry inspection process in the United States).

Additional studies of the seven diseases will assist in determining reasons for differing hospitalization rates and causes of death. FoodNet investigators also are conducting population-based surveys and surveys of physicians to determine what proportion of persons with diarrhea seeks medical care and what proportion of physicians requests specimens from persons with diarrhea. Analytic studies are being conducted to determine what proportion of *E. coli* O157:H7 and *Salmonella* serogroup B and D infections are associated with specific foods, foodhandling practices, and behaviors.

In addition to addressing the burden and specific sources of foodborne diseases, FoodNet and EIP have provided the framework for responding to several emerging foodborne diseases in the United States. For example, FoodNet collaborators assisted in the investigations of several multistate outbreaks, including an outbreak of *Cyclospora* infections associated with consumption of raspberries imported from Guatemala (*2*) and an outbreak of *E. coli* O157:H7 infections associated with unpasteurized apple cider (*3*).

Foodborne Diseases Active Surveillance Network — Continued

On January 1, 1997, the addition of one county in Connecticut and 12 counties in Georgia increased the FoodNet surveillance population in the EIP sites to 14.7 million persons (6% of the U.S. population). In addition, collaborators from Maryland and New York joined EIP in 1997 and plan to conduct active surveillance in several counties in these states. On January 1, 1997, FoodNet initiated active surveillance for hemolytic uremic syndrome (HUS), a sequela of *E. coli* O157:H7 and other Shiga toxin-producing *E. coli* infections. At least three of the sites will conduct active surveillance for *Cryptosporidia* and *Cyclospora*, and all the sites plan to participate in a case-control study for *Campylobacter* infections in late 1997.

References

1. CDC. Addressing emerging infectious disease threats to health; a prevention strategy for the United States. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, 1994.
2. CDC. Outbreaks of *Cyclospora cayetanensis* infections—United States, 1996. MMWR 1996;45:549–51.
3. CDC. Outbreaks of *Escherichia coli* O157:H7 infection and cryptosporidiosis associated with drinking unpasteurized apple cider—Connecticut and New York, October 1996. MMWR 1997;46:4–8.

Candida albicans Endocarditis Associated with a Contaminated Aortic Valve Allograft — California, 1996

An allograft heart valve is an implanted valve obtained from a person not related to the recipient. Fungal endocarditis secondary to extrinsic valve contamination is a rare but potentially fatal complication of allograft valve replacement; its incidence following surgery for heart valve replacement with allografts is approximately 0.3% (*1,2*). Treatment often is unsuccessful, and death is a frequent outcome (*3*). This report describes the investigation of a case of *Candida albicans* endocarditis associated with a contaminated aortic valve allograft. The findings indicated that antimicrobial processing of the initial aortic valve allograft did not eliminate *C. albicans* from the tissue.

In May 1996, a patient in California received an aortic valve allograft (Cryolife, Incorporated, Kennesaw, Georgia*) for aortic insufficiency. No postoperative complications occurred, and 5 days later, the patient was discharged. Eleven days after discharge, the patient was readmitted with fever of 104 F (40 C), nausea, diarrhea, and marked abdominal tenderness. His white blood cell count was 6800/mL^3. Cultures of blood specimens drawn on admission were positive for *Candida albicans*, and the next day, amphotericin B and 5-fluorocytosine therapy was initiated. Fungal endocarditis was suspected, and a transesophageal echocardiogram revealed dehiscence of the aortic valve allograft. Intraoperative examination confirmed dehiscence of the aortic valve from the septum; in addition, an intramyocardial abscess and multiple vegetations were present in and around the suture line. The allograft was replaced with another allograft from the same supplier.

*Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Candida albicans *Endocarditis — Continued*

Photomicroscopic examination of smears of the valve surface from the first allograft prepared with potassium hydroxide revealed yeast elements, and culture of the valve yielded *C. albicans*. Following surgery to replace the allograft, the patient's fever resolved, and 7 days after the second surgery, he was discharged. He received a total of 57 days of therapy with amphotericin B, and as of March 1997, he remained symptom-free.

A review of the harvest and processing history of the allograft determined that, during processing, culture of tissue sampled from the allograft valve was positive for *C. albicans*. The harvested valve then was soaked in an antimicrobial solution containing fluconazole, amphotericin B, vancomycin, imipenem, and netilmicin (the temperature and duration of the disinfection process are considered proprietary information by the supplier). After disinfection, a sample trimming of the valve was recultured, and no fungal growth was evident.

The *C. albicans* isolates, obtained from valve trimmings during processing and when the valve was removed from the recipient, were highly similar by DNA fingerprinting using Southern blot hybridization with the DNA probe Ca3 (*4,5*). Antifungal susceptibility testing determined that the isolate obtained from the valve on removal from the recipient was more resistant to fluconazole and amphotericin B than the isolate obtained during processing (for fluconazole, minimum inhibitory concentration [MIC] was 0.5 μg/mL at harvest compared with 64 μg/mL at removal; for amphotericin B, MIC was 0.5 μg/mL at harvest compared with 2 μg/mL at removal).

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Editorial Note: An allograft heart valve is harvested from a brain-dead or postmortem donor not related to the recipient; preparation for storage includes incubation in an antimicrobial disinfection solution and cryopreservation. Tissue samples for sterility testing are obtained by trimming the valve when harvested; the "trimmings" are cultured for bacteria, fungi, and acid-fast bacilli before and after antimicrobial disinfection and after cryopreservation (*6*). Microbial contamination is common at harvesting, but fungal contamination is unusual. Contaminants found before disinfection usually consist of gastrointestinal tract flora (e.g., coliforms and *Streptococcus viridans*) and skin flora (e.g., *Staphylococcus aureus*, *S. epidermidis*, and *Bacillus* sp.).

The use of mixtures of antimicrobials for disinfection of valve allografts was first described in 1968 (*7*). Cryopreservation techniques developed in the mid-1970s enabled valves to be stored for prolonged periods. Since then, antimicrobial disinfection protocols have been modified to improve efficacy and valve viability, thereby increasing the supply of usable allografts (*1,8*). Several different combinations of antifungal agents have been used to optimize viability and reduce contamination rates of allografts; these have been associated with contamination rates ranging from 1.7% to 28.0% (*2*). However, antifungal agents used for disinfection may damage allograft valve tissue and may be ineffective (*1,2,6*); some studies indicate an equal incidence of fungal contamination after disinfection with regimens containing antifungal agents when compared with those that do not include antifungal agents. Some tissue banks have removed antifungal agents from the disinfection protocol because of these concerns.

Candida albicans *Endocarditis — Continued*

Six tissue banks supply most of the heart valve allografts in the United States. Five nonprofit allograft processing companies are accredited by the American Association of Tissue Banks (AATB), which requires that its accredited tissue banks "disinfect tissues via a time-specific antibiotic incubation" and facilities "establish, validate, and document antibiotic regimens and microbial surveillance methods" (*9*). These organizations employ a similar disinfection protocol, which includes use of a solution containing four antimicrobials (cefoxitin, lincomycin, polymyxin B, and vancomycin) in which valve tissues are incubated at 35.6 F–45.4 F (2 C–8 C) for approximately 24 hours. All five companies affiliated with AATB routinely discard valves with documented contamination from fungal or other pathogens specified on a compulsory discard list. The sixth tissue bank, Cryolife, is a commercial supplier not affiliated with AATB.

In the case described in this report, genetic analyses indicated that the *C. albicans* isolates obtained from allograft trimmings at harvest were identical with those obtained after the valve was removed from the patient. Processing in the antimicrobial solution may have resulted in the emergence of a more resistant strain, accounting for differences in drug-susceptibility results.

Food and Drug Administration (FDA) regulations do not require companies processing heart valve allografts to specify details of the disinfection process (e.g., type of antimicrobials used, temperature and duration, sterility testing, or culture findings that prompt processors to routinely discard a valve). Under a proposal published by FDA for regulation of cellular and tissue-based products (*10*), human heart valve allografts would be subject to donor screening and testing, processing, labeling, and registration requirements. Additional measures that could be considered by the tissue banking community include standardization and validation of disinfection methods and identification of culture results that indicate allografts must be discarded.

References

1. Wain WH, Pearce HM, Riddell RW, Ross DN. A re-evaluation of antibiotic sterilisation of heart valve allografts. Thorax 1977;32:740–2.
2. Gall K, Smith S, Willmette C, Wong M, O'Brien M. Allograft heart valve sterilization: a six-year in-depth analysis of a twenty-five-year experience with low dose antibiotics. J Thor Cardiovasc Surg 1995;110:680–7.
3. Wain WH. Antifungal treatment of allograft tissue for cardiac surgery. Sabouraudia 1981;19:199–204.
4. Anderson J, Srikantha T, Morrow B, et al. Characterization and partial nucleotide sequence of the DNA fingerprinting probe Ca3 of *Candida albicans*. J Clin Microbiol 1993;31:1472–80.
5. Schmid J, Voss E, Soll DR. Computer-assisted methods for assessing strain relatedness in *Candida albicans* by fingerprinting with the moderately repetitive sequence Ca3. J Clin Microbiol 1990;28:1236–43.
6. Wain W, Ahmed M, Thompson R, Yacoub M. The role of chemotherapy in the management of fungal endocarditis following homograft valve replacement. Postgrad Med J 1979;55:629–31.
7. Stinson EB, Angell WW, Iben AB, Shumway NE. Aortic valve replacement with the fresh valve homograft. Am J Surg 1968;116:204–9.
8. O'Brien MF, Stafford EG, Gardner MA, et al. Allograft aortic valve replacement: long-term follow-up. Ann Thorac Surg 1995;60(2 suppl):S65–S70.
9. American Association of Tissue Banks. Standards for cardiovascular tissue. In: Linden JV, ed. Standards for tissue banking. McLean, Virginia: American Association of Tissue Banks, 1996:97–108.
10. Food and Drug Administration. Proposed approach to regulation of cellular and tissue-based products: availability and public meeting. Federal Register 1997;62:9721.

Probable Locally Acquired Mosquito-Transmitted *Plasmodium vivax* Infection — Georgia, 1996

Endemic, mosquitoborne transmission of malaria was interrupted in the United States during the 1940s. Since then, 57 small localized outbreaks of probable mosquito-transmitted malaria in the United States have been reported to CDC (*1,2*). This report summarizes the investigation of a case of *Plasmodium vivax* infection in a resident of Georgia who had never lived in or visited a malarious area. The results of this investigation suggest that this case probably was acquired through the bite of a locally infected *Anopheles sp.* mosquito, although a probable source of infection for mosquitoes was not confirmed.

Case Investigation

On June 22, 1996, a 53-year-old man residing in Tift County, Georgia, was admitted to a hospital because of a 12-day history of fever, chills, fatigue, and myalgias. Physical examination on admission revealed a temperature of 105.6 F (40.9 C) and mild tachypnea. Initial laboratory examinations demonstrated only moderate anemia (hemoglobin: 10.5 g/dL) and thrombocytopenia. The tentative diagnosis was fever of unknown origin.

On June 26, examination of a peripheral blood smear revealed intracellular parasites consistent with *P. vivax.* This diagnosis was subsequently confirmed at CDC by examination of a blood smear and serologic testing. The patient was treated with chloroquine phosphate (2500 mg total dose, divided over 3 days) and primaquine phosphate (26.3 mg daily for 14 days). All symptoms resolved and subsequent examination of peripheral blood smears showed clearance of the parasitemia.

The patient was born in Piedras Negras, Coahuila State, Mexico (on the Texas-Mexico border), approximately 500 miles from the nearest malarious area. He had emigrated to the United States during the mid-1980s, working for 2 years as a migrant farm worker in California and Florida before moving to Tift County to work on a hog farm. He had made one return visit to Coahuila, Mexico, in August 1993, during which he traveled only within an area 70 miles south of the Texas border and never entered any area where malaria transmission is known to occur. Since his return, he has remained continuously in southwestern Georgia. He had never received blood or blood products and denied use of parenteral drugs.

The patient reported that during May–June 1996, the period during which he probably became infected, he had spent his nights in Tift County at either a mobile home park, where many migrant farm workers reside, or a small encampment of trailers contiguous to the hog farm. In both locations, he slept in rooms with open, unscreened windows.

Active Case Detection

No other cases of malaria had been reported to the Georgia Department of Human Resources (GDHR) from southwestern Georgia since January 1, 1996. To identify potential unreported cases, a telephone survey was conducted of hospital infection-control practitioners in all hospitals and clinical laboratories serving southwestern Georgia; no additional smear-positive malaria infections were identified from May 1 through July 1, 1996—a period defining the time interval required for two complete parasite life cycles and during which climatic conditions would have supported local,

Plasmodium vivax *Infection — Continued*

mosquitoborne transmission. In addition, a telephone survey of all physicians in Tift County who specialized in internal medicine, family practice, and/or pediatrics did not identify any persons with malaria or unexplained fever.

Two potential sources of mosquito infection were considered: persons who recently had immigrated from regions where malaria is endemic, including migrant farm workers, and travelers returning from countries where malaria is endemic. An estimated 8000 migrant and seasonal laborers work in Tift County and neighboring Colquitt County (GDHR, unpublished data, 1994). In Georgia, approximately 95% of migrant laborers are natives of Mexico. In Tift and Colquitt counties, most migrant laborers are natives of Guerrero, Oxaca, Michoacan, and Chiapas states, in which malaria transmission is endemic. Most other migrant workers are natives of Guatemala or the United States. Migrant clinics in Tift and Colquitt counties did not report any patients with malaria or a fever of unknown origin during January–June 1996.

Data about the numbers of persons who have immigrated to southwestern Georgia and area residents returning from travel to countries with endemic malaria were unavailable. Previous reports have documented malaria transmission by mosquitoes unintentionally transported by aircraft from areas where malaria is endemic ("airport malaria") (*3*); however, the nearest airport receiving international flights is in Atlanta, approximately 175 miles from Tift County and beyond the radius of travel for a mosquito.

Environmental and Entomologic Investigation

Larvae of *Anopheles quadrimaculatus*—species A, competent mosquito vectors of malaria, were identified in a creek located 0.2 miles from the mobile home park where the patient usually slept. Several adult An. quadrimaculatus mosquitoes were captured in a CDC light trap left overnight in a wooded area in the mobile home park. Larvae of multiple *Culex* sp., but not anophelines, were identified in one of many man-made pools on the hog farm. Two blood-fed, adult *Culex* sp. mosquitoes were aspirated from the corners of the bedroom of the trailer where the patient slept; however, no anophelines were found by aspiration or by overnight trapping.

The mean daily minimum and maximum temperatures for Tift County in May were 63.5 F (17.5 C) and 86.0 F (30.0 C) and, in June, were 65.2 F (18.4 C) and 85.3 F (29.6 C) (Coastal Plain Experiment Station, College of Agricultural and Environmental Sciences, University of Georgia, unpublished data, 1996). Although rainfall in May and June was only 1.2 and 2.0, respectively, farms that surround the mobile home park and the trailer encampment use overhead spray irrigation with multiple drainage canals to collect runoff—preferred habitats for the breeding of *Anopheles sp*. mosquitoes. In addition, multiple small ponds and creeks in the surrounding area provide a suitable environment for breeding of anophelines.

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Editorial Note: This investigation confirmed a single case of *P. vivax* infection in a person residing in Tift County, Georgia. Based on a consideration of five factors, this person probably acquired infection in southwestern Georgia through the bite of a locally infected *Anopheles* sp. mosquito. First, although the patient was born in Mexico,

Plasmodium vivax *Infection — Continued*

he had never lived in or visited an area where malaria is endemic. Second, the patient did not report other risk factors for malaria, including blood transfusion or use of injecting drugs. Third, both adult- and larval-stage *An. quadrimaculatus* mosquitoes were identified near the location where the patient usually slept in a room with open, unscreened windows. Fourth, environmental or climatic conditions were suitable for promoting development of the parasite in the mosquito (sporogonic cycle) (the speed of development is directly related to increasing ambient temperature) (*4*); a more rapid sporogonic cycle would increase the likelihood that the parasite would develop into the stage that is infective to humans during the mosquito's lifespan. Fifth, widespread use of overhead spray irrigation by farms in this area and multiple small ponds and creeks provided potential habitats for the breeding of *Anopheles sp.* mosquitoes in the absence of rainfall.

Although active case-detection efforts failed to identify persons with malaria who might have been the source of mosquito infection, migrant farm laborers—including some from malarious areas of Mexico and Central America—worked and lived in Tift and Colquitt counties when this patient became infected. Reasons for failing to identify potential source-patients among this group could include self-treatment with an antimalarial drug, receipt of an antibiotic that has antimalarial activity (e.g., trimethoprim-sulfamethoxazole) for another presumptive condition, or diagnosis of and treatment for malaria outside the area of active surveillance in a person who subsequently visited Tift County before parasitemia had cleared.

Two additional routes of infection in the patient cannot be ruled out by the findings of this investigation. First, an infected mosquito could have been transported in the baggage of a traveler returning from a visit to a malarious area ("baggage malaria") (*5*). This route has been implicated as the possible source of outbreaks in Europe, but no published evidence suggests that mosquitoes can survive long trips in baggage. Second, the patient's illness may have resulted from relapse of infection acquired during his trip to northern Mexico in 1993. Relapses of *P. vivax* can occur up to 4 years after the primary infection. Although the U.S.-Mexico border area is not considered an area with ongoing malaria transmission, previous investigations identified three persons with malaria who had traveled only in the border region (*6*; CDC, unpublished data, 1995), suggesting the possible occurrence of sporadic malaria transmission in northern Mexico. However, the patient did not recall a febrile illness during or after that visit, and asymptomatic malaria infection is rare among persons who do not reside in areas of intense malaria transmission (e.g., sub-Saharan Africa).

This report is the 11th documented episode of probable mosquito-transmitted malaria in the United States since 1986 (*2,6–9*); the frequency of such episodes has increased since 1976. Factors that may be contributing to the reemergence of locally acquired malaria include increased travel by U.S. residents to areas where malaria is endemic and shifting patterns of immigration to the United States. For immigrant populations originating from malarious areas, limitations in their access to health care (e.g., financial, cultural, and legal barriers) in the United States also may contribute by extending the duration of parasitemia in an infected person. Strategies to improve the detection and treatment of malaria among migrant and immigrant populations include clarification of current practices in the management of febrile illness, addressing obstacles to health care, development of appropriate educational messages about malaria, and encouraging appropriate use of medical services. Finally, malaria should

Plasmodium vivax *Infection — Continued*

be considered by all physicians who provide care for persons with unexplained fever—regardless of travel history and particularly during summer months. Additional information is available from CDC, telephone (404) 332-4559.

References

1. Zucker JR. Changing patterns of autochthonous malaria transmission in the United States: a review of recent outbreaks. Emerg Infect Dis 1996;2:37–43.
2. CDC. Mosquito-transmitted malaria—Michigan, 1995. MMWR 1996;45:398–400.
3. Isaacson M. Airport malaria: a review. Bull WHO 1989;67:737–43.
4. Bruce-Chwatt LJ. Essential malariology. 2nd ed. New York: John Wiley and Sons, 1985.
5. Mantel CF, Klose C, Scheurer S, et al. *Plasmodium falciparum* malaria acquired in Berlin, Germany. Lancet 1995;346:320–1.
6. CDC. Local transmission of *Plamodium vivax* malaria—Houston, Texas, 1994. MMWR 1995;44:295–303.
7. Brook JH, Genese CA, Bloland PB, Zucker JR, Spitalny KC. Malaria probably locally acquired in New Jersey. N Engl J Med 1994;331:22–3.
8. Layton M, Parise ME, Campbell CC, et al. Mosquito-transmitted malaria in New York City, 1993. Lancet 1995;346:729–31.
9. Maldonado YA, Nahlen BL, Roberto RR, et al. Transmission of *Plasmodium vivax* malaria in San Diego County, California, 1986. Am J Trop Med Hyg 1990;42:3–9.

Human Rabies — New Hampshire, 1996

On August 20, 1996, a 32-year-old resident of New Hampshire died in a Massachusetts hospital from an illness characterized by rapid neurologic deterioration. Rabies had been clinically suspected on the date of her transfer from a New Hampshire hospital (August 14) and was confirmed by CDC on August 17. This report summarizes the investigation of this case by the state health departments of New Hampshire, Massachusetts, Maryland, and Pennsylvania, which implicated a dog in Kathmandu, Nepal, as the probable source of exposure.

The patient initially sought care at a hospital emergency department (ED) in New Hampshire on August 12 for a 2-day history of paresthesias and pain radiating up her left arm from the site of a healed bite. She reported being bitten by a dog on her left hand on June 7 while in Kathmandu, but did not receive rabies postexposure prophylaxis (PEP) for the bite. Physical examination was normal, and left cervical radiculopathy was diagnosed. Anti-inflammatory and analgesic drugs were prescribed, and she was discharged.

On August 14, the patient returned to the ED with complaints of progressive difficulty breathing, throat spasms, nausea, and vomiting and reported severe pharyngeal spasms when she drank fluids or showered. Physical findings included an oral temperature of 97.3 F (36.3 C), pulse rate of 64 beats per minute, respiratory rate of 26 breaths per minute, and blood pressure of 106/60 mmHg. The patient was alert, oriented, and in no acute distress. She had a normal sensory examination; however, painful spasms of the bulbar musculature of the lower face and throat were noted when she brought a cup to her mouth or when air was blown in her face. Routine laboratory evaluation, an electrocardiogram, and radiographs of the chest and lateral neck were normal. On the basis of history and symptoms, clinical rabies was suspected, and the patient was transferred to a hospital in Massachusetts for further

Human Rabies — Continued

evaluation and treatment. On admission, a computerized tomography scan of her head was normal. Cerebrospinal fluid evaluation was normal except for a white blood cell count of 42 cells/L, with a differential of 12% neutrophils, 56% lymphocytes, and 32% monocytes. The patient was initially treated with rabies immunoglobulin (RIG) and human diploid cell vaccine (HDCV) in the standard postexposure regimen (*1*).

Over the subsequent 12 hours, the patient developed increasing agitation, anisocoria, salivation, and worsening facial and pharyngeal spasms. She suffered a cardiac arrest on August 15, but was successfully resuscitated. She received experimental treatment with high-dose intravenous and intrathecal RIG; however, her condition continued to deteriorate. On August 15, a full-thickness nuchal skin biopsy and saliva sample were obtained and sent to CDC for rabies diagnosis. Both tested positive for rabies virus on August 17 by a nested polymerase chain reaction (PCR) procedure. Patient serum collected on August 16 also was antibody positive, containing a virus neutralizing titer of 1:9 by the rapid fluorescent focus inhibition test. Nucleotide sequence analysis of the PCR product conducted at CDC on August 18 implicated a variant of rabies virus associated with dogs from the Indian subcontinent.

On August 20, neurologic evaluation of the patient revealed no brainstem or cortical function, and life support was discontinued. Because rabies was suspected on admission, appropriate precautions were observed, and no employee at the Massachusetts hospital required PEP.

The patient had been traveling for a 6-month period in New Zealand, Australia, Thailand, and Nepal. She was bitten on the left hand while petting a stray dog on June 7 while in Kathmandu. The wound was immediately washed with peroxide and rubbing alcohol. The dog was observed for about 45 minutes and appeared normal, and no rabies testing was performed on the animal. The patient was reportedly unable to obtain PEP in Kathmandu or Bangkok, Thailand, and was advised to go to Sydney, Australia, for definitive medical care. On June 12, she was examined at a hospital in Sydney and was told that RIG and rabies vaccine were not immediately available and to return the following day for treatment. Because the patient had reportedly received conflicting information from other sources regarding her risk for rabies and the benefit of PEP after the delay between exposure and treatment, she elected not to return to the hospital for treatment.

The patient returned to the United States around June 30 and remained in Maryland during July. While returning to New Hampshire, she visited relatives in Pennsylvania on August 3. During this visit, salivary contact (i.e., kissing and sharing of utensils and drink glasses) was reported with five persons. One other contact, a traveling companion, also reported salivary contact. All six persons were administered PEP. The patient returned to New Hampshire on August 4 and developed her first symptoms on August 10. An investigation was initiated to determine other close contacts to the patient on or after July 31. Other than the six contacts previously noted, a physician in New Hampshire who initially examined the patient in the ED also received PEP.

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Editorial Note: This report describes the second case of human rabies reported in the United States in 1996 (*2*) and the 30th case reported since 1980. Of the 30 cases, 14 (47%) (including this case) have been associated with exposure to dogs; 12 of the 14 were presumed to have been acquired outside the United States.

Although the incubation period for rabies is usually 1–3 months, longer incubation periods have been reported (*3*). Prevention of disease after exposure is only effective if PEP is administered before the onset of clinical disease. Although treatment should be initiated as soon as possible, the stage of the incubation period during which infection becomes intractable is unknown. Therefore, PEP is recommended for administration anytime before the onset of symptoms, regardless of the time elapsed since exposure. RIG still may be administered for up to 1 week after the rabies vaccine series has been initiated. However, administration of RIG more than 1 week after initiation of the vaccine series is not recommended because antibodies to the virus already will have been induced by the vaccine.

In the United States, the median interval between exposure and administration of PEP is approximately 5 days (*4*). Regardless of this delay, there have been no reported failures of PEP in the United States in association with the correct implementation of the treatment regimen specified by the Advisory Committee on Immunization Practices (ACIP) (*1*). In this case, had the patient elected to receive PEP in Sydney, Australia, a delay of about 5 days would have occurred. In countries that have been free of rabies for many years, PEP is infrequently administered, and there may be difficulty in obtaining RIG and rabies vaccine and confusion about the suitability of administering PEP when delays occur between exposure and the presentation for treatment. With the discovery of a new rabies-like lyssavirus from flying foxes and insectivorous bats in Australia and the identification of a human fatality associated with this virus (*5*), use of PEP in that country is expected to increase.

The risk for rabies for international travelers is greatest in areas where canine rabies is still highly endemic, including many parts of Africa, Asia, and Central and South America. Two countries where the patient in this report had extended stays—Nepal and Thailand—are considered to be areas where dog rabies is highly endemic. Preexposure vaccination with HDCV or rabies vaccine adsorbed should be considered for persons living in or visiting (for >30 days) areas where rabies is endemic and appropriate PEP may not be readily obtained.

Preexposure vaccination does not eliminate the need for additional therapy after an exposure but does simplify the postexposure regimen by eliminating the need for RIG and decreasing the number of required vaccine doses (*6*). Because rabies virus may be present in the saliva of infected animals 3–4 days before onset of clinical symptoms (*7*), persons who are bitten or scratched by any animal should thoroughly wash all wounds with soap and water and immediately seek medical consultation to evaluate the need for PEP (*1,2*). In situations associated with a delay between a high-risk exposure and presentation for treatment, PEP should be administered regardless of the delay.

References

1. CDC. Rabies prevention—United States, 1991: recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991;40(no. RR-3).

Human Rabies — Continued

2. CDC. Human rabies—Florida, 1996. MMWR 1996;45:719–20,727.
3. Smith JS, Fishbein DB, Rupprecht CE, Clark K. Unexplained rabies in three immigrants in the United States, a virologic investigation. N Engl J Med 1991;324:205–11.
4. Helmick CG. The epidemiology of human rabies postexposure prophylaxis, 1980–1981. JAMA 1983;250:1990–6.
5. Fraser GC, Hooper PT, Lunt RA, et al. Encephalitis caused by a lyssavirus in fruit bats in Australia. Emerging Infectious Diseases 1996;2:327–31.
6. CDC. Health information for international travel, 1994. Atlanta: US Department of Health and Human Services, Public Health Service, 1994:125–8.
7. Vaughn JB Jr, Gerhardt P, Newell KW. Excretion of street rabies virus in the saliva of dogs. JAMA 1965;193:363–8.

Notice to Readers

International Conferences on Emerging Infectious Diseases

CDC and its partners are cosponsoring the International Conference on Emerging Infectious Diseases (ICEID) March 8–12, 1998, in Atlanta. The purposes of the conference are to 1) exchange scientific and public health information about global emerging infectious disease issues, 2) present programs and activities that address emerging infectious diseases, 3) identify program gaps, 4) increase awareness in the public health and scientific communities of emerging infectious disease issues, and 5) enhance partnerships to address emerging infectious diseases.

The 4th International Conference on HFRS and Hantaviruses will precede the ICEID, convening March 5–7, 1998, in Atlanta. The conference will encourage exchange of scientific information about hantaviruses. Attendees may register for one or coregister for both conferences.

The call for abstracts and registration information will be available on the World-Wide Web at http://www.cdc.gov/ncidod/ncid.htm and published in the *Emerging Infectious Disease Journal* and other professional publications.

Notice to Readers

Internet Address Change for Questions About Electronic *MMWR*

The e-mail address for questions about the electronic format of *MMWR* has been changed to mmwrq@cdc.gov. This address should be used only for questions regarding the electronic format of the publications.

Notice to Readers

Course on New and Reemerging Infectious Diseases

CDC, Emory University School of Medicine, and the National Foundation for Infectious Diseases (NFID) will cosponsor a new and reemerging infectious diseases course June 7–9, 1997, in Atlanta, Georgia. The course will address epidemiology, recognition, treatment, and management of new and reemerging infectious diseases. Continuing Medical Education credit hours will be offered. Additional information is available from Kip Kantelo, NFID, 4733 Bethesda Avenue, Suite 750, Bethesda, MD 20814-5228; telephone (301) 656-0003; fax (301) 907-0878; e-mail NFID@aol.com.

Notice to Readers

Teaching Epidemiology and Computing With Epi Info and DoEpi: A Course for Teachers of Epidemiologic Computing

CDC and Emory University's Rollins School of Public Health will cosponsor a course, "Teaching Epidemiology and Computing With Epi Info and DoEpi," during June 23–27, 1997, at CDC. The course is designed for teachers of epidemiologic computing.

The course will provide hands-on experience with programming Epi Info and Epi Map software; methods of teaching epidemiologic computing; DoEpi, a new series of computerized interactive exercises for teaching epidemiology and computing; constructing a new exercise in DoEpi; and a preview of Epi Info 2000, the Microsoft Windows* version of Epi Info. Enrollment is limited, and there is a tuition charge.

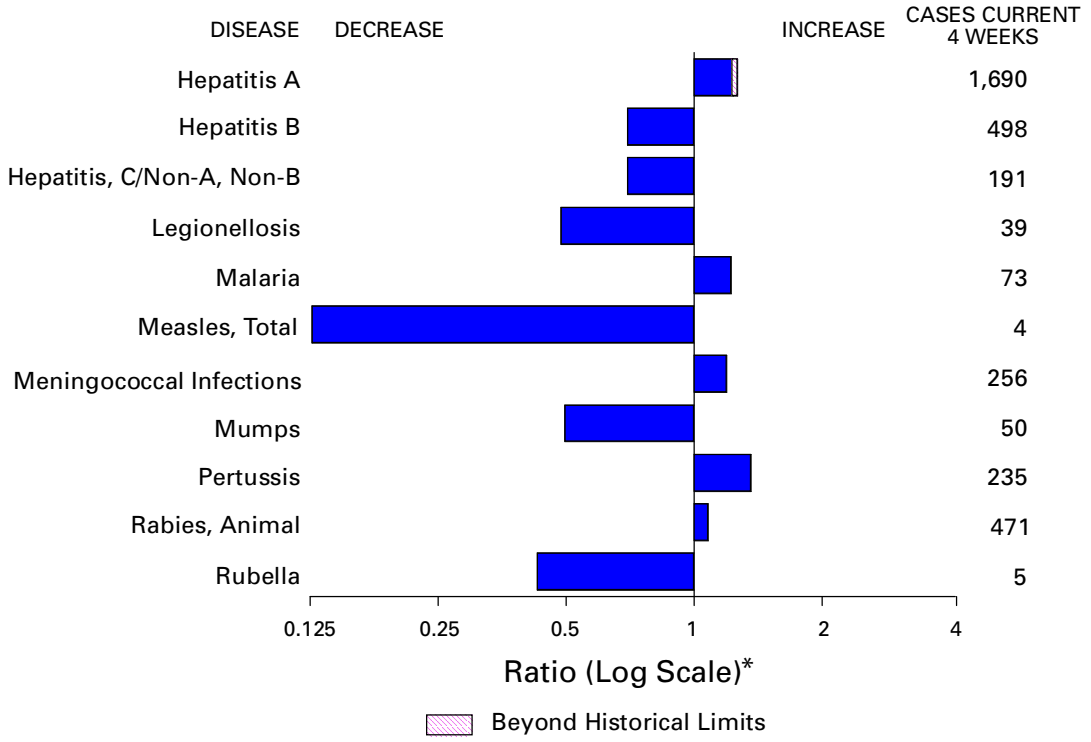
Additional information and applications are available from Department PSB, Emory University, Rollins School of Public Health, 7th floor, 1518 Clifton Rd. NE, Atlanta GA 30322; telephone (404) 727-3485 or 727-0199; e-mail brachman@sph.emory.edu; fax (404) 727-4590.

*Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Erratum: Vol. 46, No. 11

In the article "Tobacco Tax Initiative—Oregon, 1996," on page 247, in the third sentence of the first paragraph of the Editorial Note, a date was given incorrectly. The sentence should read, "Similar initiatives failed in Montana (1990) and Colorado (*1994*)."

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending March 22, 1997, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending March 22, 1997 (12th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	-
Brucellosis	10	Poliomyelitis, paralytic	-
Cholera	0	Psittacosis	8
Congenital rubella syndrome	2	Rabies, human	1
Cryptosporidiosis*	230	Rocky Mountain spotted fever (RMSF)	18
Diphtheria	-	Streptococcal disease, invasive Group A	268
Encephalitis: California*	1	Streptococcal toxic-shock syndrome*	5
eastern equine*	-	Syphilis, congenital¶	-
St. Louis*	-	Tetanus	7
western equine*	-	Toxic-shock syndrome	22
Hansen Disease	26	Trichinosis	2
Hantavirus pulmonary syndrome*†	1	Typhoid fever	64
Hemolytic uremic syndrome, post-diarrheal*	9	Yellow fever	-
HIV infection, pediatric*§	19		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update January 28, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending March 22, 1997, and March 23, 1996 (12th Week)

Reporting Area	AIDS*		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	5,109	14,539	73,117	85,021	212	10	49,734	69,948	897	663
NEW ENGLAND	134	624	3,131	4,295	18	-	1,271	1,719	7	15
Maine	13	8	49	U	1	-	3	10	-	-
N.H.	1	23	124	132	-	-	35	31	1	2
Vt.	7	7	91	118	1	-	14	16	-	7
Mass.	62	386	1,536	1,529	14	-	554	519	6	5
R.I.	19	17	487	526	1	-	125	134	-	1
Conn.	32	183	844	1,990	1	-	540	1,009	-	-
MID. ATLANTIC	1,921	4,243	4,599	11,104	13	-	2,956	6,554	57	48
Upstate N.Y.	113	426	N	N	7	-	361	5	40	42
N.Y. City	1,039	2,445	U	4,680	4	-	U	2,939	-	1
N.J.	468	844	1,065	1,770	2	-	784	1,090	-	-
Pa.	301	528	3,534	4,654	N	-	1,811	2,520	17	5
E.N. CENTRAL	242	1,176	12,799	20,661	32	3	8,278	13,820	127	109
Ohio	57	300	2,961	4,820	16	-	2,064	3,665	5	3
Ind.	25	92	1,848	1,985	7	1	1,307	1,512	1	2
Ill.	115	524	2,557	6,074	-	-	1,360	3,989	-	20
Mich.	29	192	4,113	5,150	9	2	2,903	3,462	121	84
Wis.	16	68	1,320	2,632	N	-	644	1,192	-	-
W.N. CENTRAL	127	354	4,857	7,342	29	2	2,206	2,940	26	18
Minn.	17	83	U	999	16	-	U	-	-	-
Iowa	38	23	1,168	549	7	2	294	183	13	5
Mo.	54	167	2,361	3,640	1	-	1,445	2,005	3	9
N. Dak.	2	-	81	219	3	-	5	8	2	-
S. Dak.	-	5	239	245	-	-	30	40	-	-
Nebr.	15	22	227	582	1	-	85	118	-	2
Kans.	1	54	781	1,108	1	-	347	586	8	2
S. ATLANTIC	1,239	3,452	17,478	12,124	34	1	18,987	24,922	53	34
Del.	20	92	U	U	1	-	248	357	-	-
Md.	166	423	1,537	1,300	2	1	2,915	3,159	4	-
D.C.	55	127	N	N	-	-	1,038	1,043	-	-
Va.	130	180	2,456	2,740	N	-	1,988	2,280	4	1
W. Va.	14	24	U	U	N	-	162	99	1	4
N.C.	59	196	4,146	U	5	-	3,735	4,706	17	8
S.C.	104	188	2,648	U	-	-	2,522	2,808	12	7
Ga.	183	451	1,696	2,863	13	-	2,764	6,095	U	-
Fla.	508	1,771	4,995	5,221	13	-	3,615	4,375	15	14
E.S. CENTRAL	134	477	6,345	6,465	19	-	6,251	7,049	71	117
Ky.	23	85	1,470	1,650	6	-	920	951	3	5
Tenn.	59	171	2,773	2,729	11	-	2,399	2,441	33	111
Ala.	37	155	1,835	2,025	-	-	2,607	3,205	4	1
Miss.	15	66	267	61	2	-	325	452	31	-
W.S. CENTRAL	420	1,326	6,686	4,495	3	-	5,026	5,745	53	72
Ark.	18	70	263	313	2	-	566	906	2	1
La.	64	291	1,475	-	1	-	1,481	1,898	37	29
Okla.	32	52	1,529	1,749	-	-	1,067	1,113	1	26
Tex.	306	913	3,419	2,433	-	-	1,912	1,828	13	16
MOUNTAIN	122	392	4,604	2,489	25	-	1,628	1,888	80	154
Mont.	7	4	137	-	-	-	10	4	3	8
Idaho	2	7	370	356	1	-	25	20	13	37
Wyo.	1	2	110	155	-	-	14	10	27	41
Colo.	24	86	101	6	13	-	369	466	17	14
N. Mex.	5	25	960	877	4	-	335	216	11	25
Ariz.	30	132	2,057	70	N	-	686	927	5	19
Utah	10	57	308	359	1	-	36	60	1	6
Nev.	43	79	561	666	6	-	153	185	3	4
PACIFIC	770	2,495	12,618	16,046	39	4	3,131	5,311	423	96
Wash.	45	140	2,098	2,276	5	-	498	587	5	23
Oreg.	30	141	622	1,215	11	-	89	91	3	3
Calif.	682	2,175	9,256	12,000	20	4	2,325	4,413	372	34
Alaska	10	3	301	116	3	-	121	101	-	2
Hawaii	3	36	341	439	N	-	98	119	43	34
Guam	-	3	-	88	N	-	-	21	-	-
P.R.	144	416	N	N	4	U	175	36	8	12
V.I.	4	3	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	8	11	2	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update January 28, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending March 22, 1997, and March 23, 1996 (12th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	186	156	489	985	266	221	1,637	2,804	2,528	3,255	1,245
NEW ENGLAND	14	4	45	67	5	5	32	46	69	83	195
Maine	1	1	-	-	-	1	-	-	-	3	38
N.H.	3	-	2	2	-	-	-	1	2	3	7
Vt.	2	-	1	-	-	1	-	-	-	-	27
Mass.	4	1	24	7	4	3	15	18	37	29	42
R.I.	1	2	18	19	1	-	-	-	5	13	1
Conn.	3	N	-	39	-	-	17	27	25	35	80
MID. ATLANTIC	32	33	362	833	57	61	55	93	509	506	275
Upstate N.Y.	8	7	37	264	10	12	5	7	48	60	195
N.Y. City	-	1	2	210	28	29	U	33	273	249	-
N.J.	3	5	67	70	14	17	33	28	113	114	21
Pa.	21	20	256	289	5	3	17	25	75	83	59
E.N. CENTRAL	71	56	8	4	11	25	159	451	368	443	3
Ohio	42	20	7	2	1	4	59	175	87	68	2
Ind.	7	13	1	2	1	1	38	63	19	33	1
Ill.	-	5	-	-	-	9	17	119	192	279	-
Mich.	22	14	-	-	9	7	22	38	50	53	-
Wis.	-	4	U	U	-	4	23	56	20	10	-
W.N. CENTRAL	12	9	2	15	6	3	43	135	86	89	76
Minn.	-	-	-	1	3	-	U	33	28	28	11
Iowa	1	-	-	1	1	1	14	4	10	11	39
Mo.	4	3	-	5	2	1	19	88	33	31	6
N. Dak.	1	-	-	-	-	-	-	-	2	1	11
S. Dak.	1	2	-	-	-	-	-	-	2	6	3
Nebr.	5	4	2	-	-	-	-	5	-	-	-
Kans.	-	-	-	8	-	1	10	5	11	12	6
S. ATLANTIC	25	17	45	38	67	38	729	885	430	479	572
Del.	2	1	-	10	2	2	4	11	-	9	2
Md.	13	2	33	19	18	12	165	129	43	55	108
D.C.	1	1	4	-	4	2	31	34	17	17	1
Va.	1	5	-	-	13	6	61	111	16	25	92
W. Va.	-	1	-	2	-	-	-	1	9	18	14
N.C.	3	3	2	4	4	5	196	221	63	40	202
S.C.	1	1	1	1	3	1	96	107	71	71	25
Ga.	-	-	1	-	9	3	118	205	83	131	64
Fla.	4	3	4	2	14	7	58	66	128	113	64
E.S. CENTRAL	7	14	14	12	7	4	372	723	176	273	58
Ky.	-	3	1	4	1	2	34	39	39	47	8
Tenn.	3	6	2	3	2	1	188	229	9	81	38
Ala.	1	1	-	-	1	1	114	154	84	91	12
Miss.	3	4	11	5	3	-	36	301	44	54	-
W.S. CENTRAL	-	1	2	1	4	8	186	312	41	297	26
Ark.	-	-	-	1	1	-	18	71	23	24	6
La.	-	-	-	-	3	-	110	132	-	-	-
Okla.	-	1	1	-	-	-	29	35	18	34	20
Tex.	-	-	1	-	-	8	29	74	-	239	-
MOUNTAIN	15	8	-	-	17	15	31	39	89	120	8
Mont.	-	-	-	-	1	-	-	-	2	-	1
Idaho	1	-	-	-	-	-	-	1	1	2	-
Wyo.	1	-	-	-	1	2	-	1	1	-	-
Colo.	4	4	-	-	7	8	-	12	19	24	-
N. Mex.	-	-	-	-	2	1	-	-	4	15	1
Ariz.	3	1	-	-	-	1	26	22	40	54	6
Utah	4	-	-	-	-	2	1	-	1	10	-
Nev.	2	3	-	-	6	1	4	3	21	15	-
PACIFIC	10	14	11	15	92	62	30	120	760	965	32
Wash.	2	1	-	-	1	1	3	-	42	48	-
Oreg.	-	-	3	4	5	4	1	2	24	41	1
Calif.	7	13	8	10	86	54	25	117	624	823	29
Alaska	-	-	-	-	-	-	-	-	24	17	2
Hawaii	1	-	-	1	-	3	1	1	46	36	-
Guam	-	-	-	-	-	-	-	2	-	28	-
P.R.	-	-	-	-	1	-	58	29	-	47	10
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	2	1	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending March 22, 1997, and March 23, 1996 (12th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	274	283	5,469	6,050	1,610	1,925	-	7	-	4	11	55
NEW ENGLAND	8	8	109	58	32	39	-	-	-	-	-	6
Maine	2	-	8	8	3	2	-	-	-	-	-	-
N.H.	1	6	8	3	2	1	-	-	-	-	-	-
Vt.	-	-	4	1	1	2	-	-	-	-	-	1
Mass.	4	2	47	23	20	7	-	-	-	-	-	4
R.I.	1	-	9	2	4	2	-	-	-	-	-	-
Conn.	-	-	33	21	2	25	-	-	-	-	-	1
MID. ATLANTIC	28	40	325	429	239	313	-	1	-	1	2	3
Upstate N.Y.	1	3	27	67	41	62	-	1	-	1	2	1
N.Y. City	11	6	121	208	83	149	-	-	-	-	-	2
N.J.	11	16	77	85	56	57	-	-	-	-	-	-
Pa.	5	15	100	69	59	45	-	-	-	-	-	-
E.N. CENTRAL	28	52	371	570	163	244	-	3	-	1	4	1
Ohio	21	31	116	233	24	27	-	-	-	-	-	-
Ind.	4	2	53	89	10	23	-	-	-	-	-	-
Ill.	-	15	-	128	-	67	-	3	-	-	3	-
Mich.	3	2	172	75	127	100	-	-	-	1	1	-
Wis.	-	2	30	45	2	27	U	-	U	-	-	1
W.N. CENTRAL	8	8	384	462	78	101	-	-	-	-	-	-
Minn.	2	1	24	12	3	2	-	-	-	-	-	-
Iowa	2	3	56	120	32	12	-	-	-	-	-	-
Mo.	1	4	202	220	31	66	-	-	-	-	-	-
N. Dak.	-	-	4	5	-	-	-	-	-	-	-	-
S. Dak.	2	-	5	25	-	-	-	-	-	-	-	-
Nebr.	-	-	36	48	3	7	-	-	-	-	-	-
Kans.	1	-	57	32	9	14	-	-	-	-	-	-
S. ATLANTIC	70	51	364	196	212	296	-	-	-	-	-	2
Del.	-	1	7	3	1	1	-	-	-	-	-	1
Md.	23	18	92	44	42	77	-	-	-	-	-	-
D.C.	2	-	11	6	17	3	-	-	-	-	-	-
Va.	2	3	39	32	16	29	-	-	-	-	-	-
W. Va.	1	-	3	5	4	8	-	-	-	-	-	-
N.C.	7	9	54	26	48	93	-	-	-	-	-	-
S.C.	4	2	24	19	17	24	-	-	-	-	-	-
Ga.	15	16	38	-	13	-	-	-	-	-	-	-
Fla.	16	2	96	61	54	61	-	-	-	-	-	1
E.S. CENTRAL	14	9	138	479	174	146	-	-	-	-	-	-
Ky.	1	2	19	6	5	21	-	-	-	-	-	-
Tenn.	10	2	66	356	99	112	-	-	-	-	-	-
Ala.	3	4	30	65	17	13	-	-	-	-	-	-
Miss.	-	1	23	52	53	U	-	-	-	-	-	-
W.S. CENTRAL	9	9	977	954	116	151	-	-	-	-	-	-
Ark.	1	-	61	122	15	22	-	-	-	-	-	-
La.	-	-	49	14	23	12	-	-	-	-	-	-
Okla.	7	9	402	458	5	13	-	-	-	-	-	-
Tex.	1	-	465	360	73	104	-	-	-	-	-	-
MOUNTAIN	32	20	1,010	884	226	237	-	-	-	-	-	3
Mont.	-	-	31	17	1	-	-	-	-	-	-	-
Idaho	-	1	45	98	10	25	-	-	-	-	-	-
Wyo.	-	-	11	6	10	5	-	-	-	-	-	-
Colo.	2	4	117	92	47	35	-	-	-	-	-	-
N. Mex.	1	7	67	125	72	92	-	-	-	-	-	-
Ariz.	12	5	421	251	39	41	-	-	-	-	-	-
Utah	3	2	213	227	29	26	-	-	-	-	-	-
Nev.	14	1	105	68	18	13	-	-	-	-	-	3
PACIFIC	77	86	1,791	2,018	370	398	-	3	-	2	5	40
Wash.	-	-	113	117	11	18	-	-	-	-	-	4
Oreg.	12	11	101	305	35	34	-	-	-	-	-	-
Calif.	62	73	1,529	1,560	315	343	-	-	-	2	2	1
Alaska	1	-	9	14	5	1	-	-	-	-	-	34
Hawaii	2	2	39	22	4	2	-	3	-	-	3	1
Guam	-	-	-	2	-	-	U	-	U	-	-	-
P.R.	-	-	70	18	122	35	U	-	U	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	3	10	1	1	13	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 56 cases among children aged <5 years, serotype was reported for 24 and of those, 10 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending March 22, 1997, and March 23, 1996 (12th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	911	921	5	119	140	38	947	548	3	8	35
NEW ENGLAND	55	38	-	5	-	6	260	129	-	-	2
Maine	7	6	-	-	-	-	6	3	-	-	-
N.H.	5	1	-	-	-	-	35	13	-	-	-
Vt.	2	1	-	-	-	5	97	6	-	-	-
Mass.	33	13	-	-	-	1	112	104	-	-	-
R.I.	2	5	-	4	-	-	9	-	-	-	-
Conn.	6	12	-	1	-	-	1	3	-	-	2
MID. ATLANTIC	76	88	1	11	20	-	50	60	-	2	4
Upstate N.Y.	21	18	1	1	6	-	25	31	-	1	2
N.Y. City	14	16	-	-	3	-	5	11	-	1	1
N.J.	19	19	-	-	2	-	-	3	-	-	1
Pa.	22	35	-	10	9	-	20	15	-	-	-
E.N. CENTRAL	76	127	-	14	40	4	101	107	-	2	1
Ohio	49	47	-	3	16	2	47	46	-	-	-
Ind.	11	11	-	3	5	-	8	7	-	-	-
Ill.	-	39	-	5	8	-	15	20	-	-	1
Mich.	8	9	-	3	11	2	19	9	-	-	-
Wis.	8	21	U	-	-	U	12	25	U	2	-
W.N. CENTRAL	69	82	-	5	2	-	46	8	-	-	-
Minn.	2	3	-	3	-	-	31	1	-	-	-
Iowa	18	12	-	2	-	-	11	2	-	-	-
Mo.	33	42	-	-	-	-	-	3	-	-	-
N. Dak.	-	2	-	-	2	-	1	-	-	-	-
S. Dak.	3	3	-	-	-	-	1	-	-	-	-
Nebr.	4	8	-	-	-	-	2	1	-	-	-
Kans.	9	12	-	-	-	-	-	1	-	-	-
S. ATLANTIC	190	127	1	20	16	13	95	41	1	1	-
Del.	3	2	-	-	-	-	-	7	-	-	-
Md.	23	16	-	2	8	5	42	23	-	-	-
D.C.	1	2	-	-	-	-	2	-	-	-	-
Va.	10	14	-	1	3	-	13	-	-	-	-
W. Va.	2	4	-	-	-	-	3	-	-	-	-
N.C.	36	24	-	5	-	2	15	-	-	-	-
S.C.	32	17	-	1	3	-	3	-	1	1	-
Ga.	31	39	-	2	1	-	3	2	-	-	-
Fla.	52	9	1	9	1	6	14	9	-	-	-
E.S. CENTRAL	74	82	1	10	6	2	23	14	-	-	-
Ky.	14	9	-	-	-	-	1	6	-	-	-
Tenn.	29	24	-	3	1	2	9	5	-	-	-
Ala.	23	25	1	4	3	-	7	1	-	-	-
Miss.	8	24	-	3	2	-	6	2	-	-	N
W.S. CENTRAL	80	102	2	14	5	1	11	6	-	-	-
Ark.	19	12	-	-	-	-	3	2	-	-	-
La.	20	19	2	4	5	1	3	2	-	-	-
Okla.	11	6	-	-	-	-	-	1	-	-	-
Tex.	30	65	-	10	-	-	5	1	-	-	-
MOUNTAIN	61	58	-	4	7	8	178	68	-	-	-
Mont.	4	1	-	-	-	-	3	3	-	-	-
Idaho	4	7	-	1	-	2	105	13	-	-	-
Wyo.	-	3	-	-	-	-	3	-	-	-	-
Colo.	13	7	-	2	-	3	50	12	-	-	-
N. Mex.	12	12	N	N	N	2	9	17	-	-	-
Ariz.	15	17	-	-	1	1	8	3	-	-	-
Utah	9	4	-	1	-	-	-	1	-	-	-
Nev.	4	7	-	-	6	-	-	19	-	-	-
PACIFIC	230	217	-	36	44	4	183	115	2	3	28
Wash.	25	21	-	3	4	4	62	26	-	-	1
Oreg.	54	37	-	-	-	-	6	18	-	-	-
Calif.	150	154	-	27	33	-	110	66	-	1	25
Alaska	-	3	-	1	1	-	1	-	-	-	-
Hawaii	1	2	-	5	6	-	4	5	2	2	2
Guam	-	1	U	-	2	U	-	-	U	-	-
P.R.	2	1	U	-	1	U	-	-	U	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending March 22, 1997 (12th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	655	482	104	42	15	12	49
Boston, Mass.	168	121	25	12	7	3	9
Bridgeport, Conn.	52	37	7	6	1	1	3
Cambridge, Mass.	20	19	-	1	-	-	6
Fall River, Mass.	36	31	4	1	-	-	-
Hartford, Conn.	49	31	11	3	2	2	1
Lowell, Mass.	36	30	5	1	-	-	2
Lynn, Mass.	10	7	2	-	1	-	-
New Bedford, Mass.	29	23	3	3	-	-	1
New Haven, Conn.	47	32	8	2	3	2	5
Providence, R.I.	67	45	16	2	-	4	3
Somerville, Mass.	5	2	2	1	-	-	2
Springfield, Mass.	42	33	5	4	-	-	5
Waterbury, Conn.	35	27	5	3	-	-	4
Worcester, Mass.	59	44	11	3	1	-	8
MID. ATLANTIC	2,246	1,590	393	176	44	43	121
Albany, N.Y.	47	37	7	2	-	1	1
Allentown, Pa.	31	24	6	1	-	-	2
Buffalo, N.Y.	61	43	12	4	1	1	2
Camden, N.J.	41	32	6	2	1	-	4
Elizabeth, N.J.	17	14	1	1	-	1	-
Erie, Pa.	57	44	10	2	1	-	2
Jersey City, N.J.	56	41	7	5	-	3	1
New York City, N.Y.	1,229	856	225	99	28	21	54
Newark, N.J.	55	29	13	9	1	3	3
Paterson, N.J.	U	U	U	U	U	U	U
Philadelphia, Pa.	202	124	45	24	6	3	13
Pittsburgh, Pa.§	89	65	13	5	2	4	9
Reading, Pa.	4	4	-	-	-	-	-
Rochester, N.Y.	143	112	19	7	1	4	18
Schenectady, N.Y.	27	23	2	1	1	-	-
Scranton, Pa.	31	28	3	-	-	-	3
Syracuse, N.Y.	92	65	14	10	2	1	5
Trenton, N.J.	37	26	6	4	-	1	1
Utica, N.Y.	U	U	U	U	U	U	U
Yonkers, N.Y.	27	23	4	-	-	-	3
E.N. CENTRAL	2,143	1,424	418	165	75	61	124
Akron, Ohio	79	64	9	2	1	3	-
Canton, Ohio	29	22	6	1	-	-	4
Chicago, Ill.	445	260	93	47	26	19	35
Cincinnati, Ohio	122	82	30	6	2	2	17
Cleveland, Ohio	135	91	33	3	4	4	1
Columbus, Ohio	177	120	31	19	5	2	12
Dayton, Ohio	107	78	21	6	2	-	7
Detroit, Mich.	211	119	48	31	8	5	9
Evansville, Ind.	55	41	6	3	4	1	1
Fort Wayne, Ind.	63	46	8	5	-	4	2
Gary, Ind.	18	13	3	2	-	-	-
Grand Rapids, Mich.	66	47	11	4	2	2	5
Indianapolis, Ind.	145	90	34	13	7	1	-
Lansing, Mich.	56	35	12	4	2	3	4
Milwaukee, Wis.	135	98	26	6	1	4	13
Peoria, Ill.	46	28	9	3	2	4	4
Rockford, Ill.	61	50	8	1	1	1	4
South Bend, Ind.	35	29	3	1	-	2	2
Toledo, Ohio	91	67	12	4	5	3	4
Youngstown, Ohio	67	44	15	4	3	1	-
W.N. CENTRAL	914	655	170	47	18	19	88
Des Moines, Iowa	168	119	32	9	5	3	21
Duluth, Minn.	29	21	5	-	1	2	3
Kansas City, Kans.	46	24	15	5	1	1	-
Kansas City, Mo.	112	72	24	8	2	1	8
Lincoln, Nebr.	28	18	7	2	-	1	3
Minneapolis, Minn.	193	149	32	8	1	3	21
Omaha, Nebr.	77	53	19	2	1	2	7
St. Louis, Mo.	123	96	15	5	3	4	13
St. Paul, Minn.	53	42	8	3	-	-	8
Wichita, Kans.	85	61	13	5	4	2	4
S. ATLANTIC	1,133	742	217	109	32	29	70
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	197	123	37	25	7	5	22
Charlotte, N.C.	75	51	18	5	-	1	9
Jacksonville, Fla.	133	90	25	11	3	4	3
Miami, Fla.	107	71	21	10	4	1	1
Norfolk, Va.	53	36	8	5	3	1	2
Richmond, Va.	89	50	19	11	-	5	6
Savannah, Ga.	58	40	12	3	3	-	5
St. Petersburg, Fla.	61	43	13	3	2	-	2
Tampa, Fla.	201	140	28	17	6	10	13
Washington, D.C.	159	98	36	19	4	2	7
Wilmington, Del.	U	U	U	U	U	U	U
E.S. CENTRAL	775	550	137	53	21	13	77
Birmingham, Ala.	U	U	U	U	U	U	U
Chattanooga, Tenn.	80	66	9	5	-	-	6
Knoxville, Tenn.	104	79	16	4	3	2	21
Lexington, Ky.	98	66	17	9	4	1	10
Memphis, Tenn.	207	140	38	14	11	4	20
Mobile, Ala.	105	80	16	7	1	1	3
Montgomery, Ala.	42	30	8	2	2	-	3
Nashville, Tenn.	139	89	33	12	-	5	14
W.S. CENTRAL	1,536	1,007	288	148	56	37	109
Austin, Tex.	59	36	12	9	1	1	5
Baton Rouge, La.	53	33	13	4	3	-	1
Corpus Christi, Tex.	50	35	3	5	3	4	2
Dallas, Tex.	212	134	33	28	11	6	9
El Paso, Tex.	84	65	9	4	1	5	8
Ft. Worth, Tex.	108	70	25	10	2	1	4
Houston, Tex.	325	203	81	26	12	3	32
Little Rock, Ark.	71	54	7	6	1	3	3
New Orleans, La.	103	62	18	13	6	4	-
San Antonio, Tex.	260	172	55	23	5	5	17
Shreveport, La.	85	55	16	8	3	3	9
Tulsa, Okla.	126	88	16	12	8	2	19
MOUNTAIN	1,095	766	208	68	26	24	83
Albuquerque, N.M.	115	79	26	4	4	2	7
Boise, Idaho	36	30	4	1	-	1	2
Colo. Springs, Colo.	62	40	16	4	1	1	3
Denver, Colo.	115	85	17	8	2	3	15
Las Vegas, Nev.	210	138	53	14	3	2	11
Ogden, Utah	37	29	4	1	1	2	3
Phoenix, Ariz.	193	117	37	20	11	8	17
Pueblo, Colo.	30	25	3	2	-	-	4
Salt Lake City, Utah	118	77	28	7	3	3	9
Tucson, Ariz.	179	146	20	7	1	2	12
PACIFIC	2,118	1,554	327	145	46	46	215
Berkeley, Calif.	12	9	3	-	-	-	1
Fresno, Calif.	95	64	14	9	3	5	6
Glendale, Calif.	42	36	3	2	1	-	7
Honolulu, Hawaii	73	57	13	1	2	-	4
Long Beach, Calif.	73	52	14	5	-	2	8
Los Angeles, Calif.	591	432	92	42	13	12	50
Pasadena, Calif.	35	25	6	3	-	1	6
Portland, Oreg.	144	105	17	13	4	5	6
Sacramento, Calif.	241	174	48	11	3	5	40
San Diego, Calif.	127	93	16	12	3	3	15
San Francisco, Calif.	145	99	27	16	2	1	20
San Jose, Calif.	209	153	34	11	8	3	27
Santa Cruz, Calif.	54	45	5	4	-	-	12
Seattle, Wash.	128	97	14	9	5	3	4
Spokane, Wash.	64	48	9	2	1	4	3
Tacoma, Wash.	85	65	12	5	1	2	6
TOTAL	12,615¶	8,770	2,262	953	333	284	936

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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